The NEWS International, Karachi, Technotalk Page, March 8, 1997

How to Guard Against Curvatures of Spinal Column in Children?

Dr. Syed Arif Kamal

Department of Mathematics, *University of Karachi*, *Karachi 75270, Pakistan*
Homepage: https://www.ngds-ku.org/kamal • *e-mail*: profdrakamal@gmail.com

Scoliosis, lateral curvature of the spinal column, effects children in their growth period. If recognized early the deformity may be treated by a combination of exercises and braces. However, if it reaches advanced stage it may disfigure the body, cosmetically, and may affect vital organs, like heart and lungs. At this stage, the only recourse is major spinal surgery. Since spinal column is the site of many nerves, which control our motor system, any damage to these may cripple the patient. Professor Dr. H. Neugebauer of Orthopadisches Krankenhaus Gersthof, Vienna, Austria, a well-known Orthopedic Surgeon and host of an Orthopedic Conference in 1988, mentioned that he operated on a girl for scoliosis and she was paralyzed from the waist down. What can the parents do to save their children from the pain and the suffering, which the above patient is bearing?

The spinal column of girls is more flexible than that of boys. The incidence of scoliosis is also in the ratio of 5 to 1 in girls as compared to that in boys. Scoliosis has no symptoms and is recognized, only, by the deformity it produces in the body.

During the school-going period make sure that the children do not carry unnecessary books in their school bags. The school bags should not be carried on one side. They should be worn properly on the back exerting load evenly on both sides. The best way to avoid these complications and major surgery is to monitor young children for the curvature of spinal column. The parents may help recognize many cases early enough to avoid surgery by keeping a watchful eye on their children between the ages of 5-10 years. The very first clue of any back asymmetry shall come by observing the soles of a child's shoes. If the soles are asymmetrically worn out there is a strong suspicion that there is something wrong with the skeletal system. Another clue could be the asymmetry of knee joints observed when the child is standing erect, facing the examiner, feet together.

It is recommended that the parents conduct the following checks every six months, and a record maintained on the child's health book, especially if one of the parents or the siblings (brothers/sisters) has a back problem. The check would be noted as positive, if it indicates presence of asymmetry. This may be an indication of, possible, presence of scoliosis.

Forward-Bending Check by Parents

i) With back uncovered from the waist up, the child stands facing the parent, feet together.
ii) The child is asked to bend forward to reach toes with palms of hands joining together. Knees should NOT be flexed (that is, legs should NOT be bent) during the procedure.

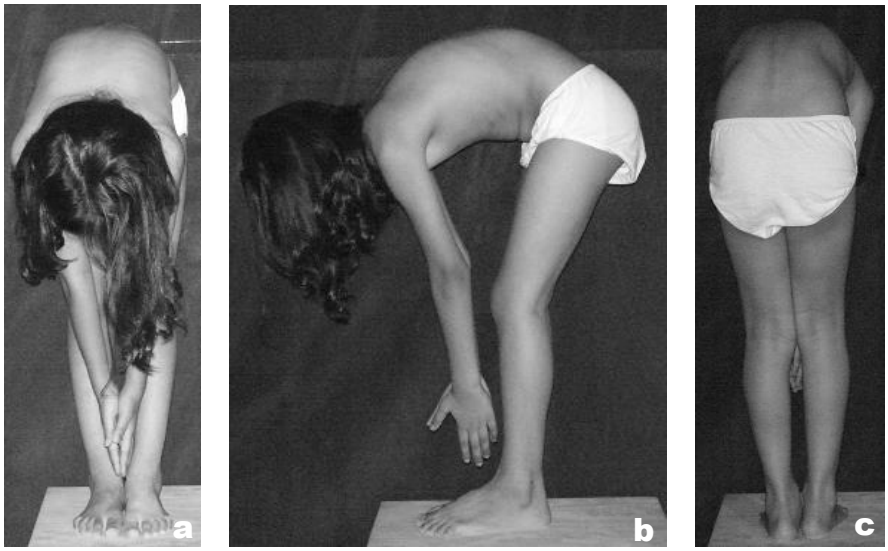

Fig. 1*a-c*. Forward-bending check — (*a*) front, (*b*) side and (*c*) back

iii) Child's back is now observed for symmetry of both halves of the back from front, side and back (Fig. 1). If one side is elevated, the check is considered positive. Otherwise, the check shall be called negative.

Visual Check by Parents

i) With back uncovered from the waist up, the child stands with back towards the parent, feet together (Fig. 2).

ii) DO NOT make the child conscious that a back examination is being done. The child may produce an artificial posture. One way to distract the child is to pretend that you are listening to heart sounds by placing a stethoscope on the back.

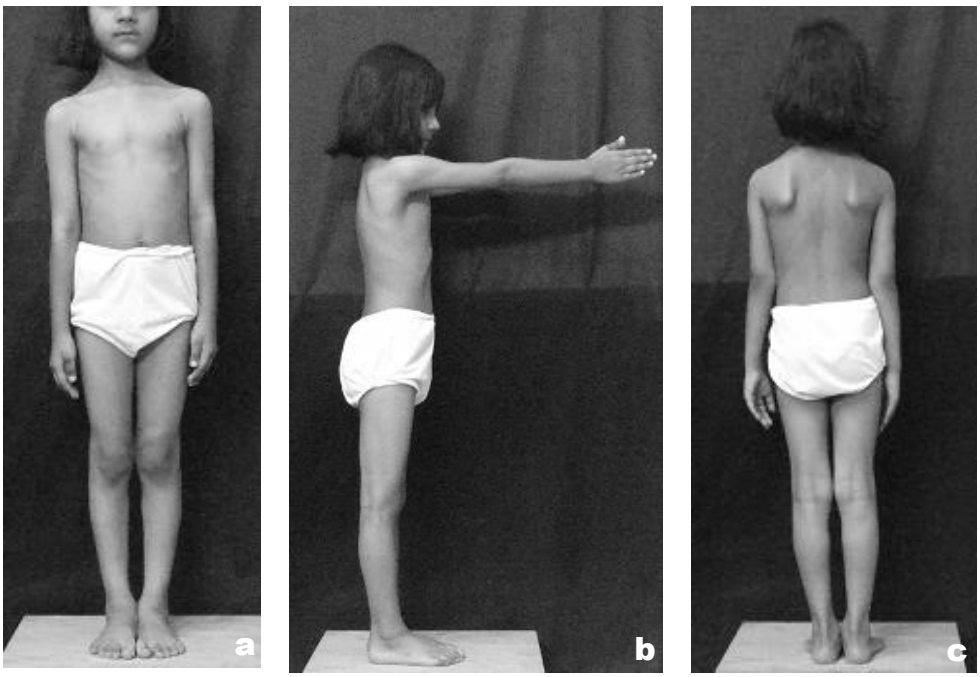

Fig. 2*a-c*. Visual check — (*a*) front, (*b*) side and (*c*) back

iii) Wait for a few minutes so that the tired stage has come.

iv) Note the following (*cf.* Fig. 23 in the photo gallery, available on the URL):
a) Are the shoulder curves symmetrical?
b) Are the left and the right scapula at the same level?
c) Do the left and the right body triangles occupy the same area?
d) Is the midline of the back straight?
A C-shaped curve is, usually, due to posture and is corrected if the child is asked to stretch. An S-shaped curve is an indication for further evaluation.
e) Are the spinal dimples at the same level?
If one of the dimples is elevated, it may be due to a leg-length inequality.

v) If answer to any two of the above questions is in the negative, this check is termed as positive.

If any one of the above checks is positive, it is recommended that the school physician sees the child. The child must receive a thorough, head-to-toe examination, with the clothing removed (Fig. 1 & 2). In addition to screening for possible skeletal deformities, this would serve as an opportunity for health education both for the child and the parent. The child may also have to get a moiré topograph of the back and an X ray of the spinal column in the standing position.

Moiré fringe topography is an imaging technique, which gives a picture of the spinal column in three dimensions, whereas an ordinary X ray gives a picture in two dimensions only. Besides this advantage moiré fringe topography uses only ordinary light and is, therefore, more suitable for examination of young children, who should not be exposed to heavy doses of X rays. In the next article moiré technique shall be described in detail.

Web address of this document (*author's homepage*)**:** https**:**//www.ngds-ku.org/Articles/A14.pdf
*HTML version***:** https**:**//www.ngds-ku.org/ngds_folder/art1.htm